Taylor Larrechea
Dr. Gustafson
MATH 360
HW 9.2

9.2 - 7, 37 ✓

9.2 #7 $\vec{a} = [1,-3,5]$ $\vec{c} = [-2,9,1]$

$|\vec{a} \cdot \vec{c}|$

$[1,-3,5] \cdot [-2,9,1] = -2 - 27 + 5 = -24$

$|\vec{a} \cdot \vec{c}| = |-24| = 24$

$|\vec{a}||\vec{c}|$

$|\vec{a}| = \sqrt{1^2 + 3^2 + 5^2} = \sqrt{35}$

$|\vec{c}| = \sqrt{2^2 + 9^2 + 1^2} = \sqrt{86}$

$\sqrt{35} \cdot \sqrt{86} = \sqrt{3010}$

$\boxed{\begin{array}{l} |\vec{a} \cdot \vec{c}| = 24 \\ |\vec{a}||\vec{c}| = \sqrt{3010} \end{array}}$

9.2 #37 $\vec{a} = [3,4,0]$ $\vec{b} = [4,-3,2]$

$\vec{a} \cdot \vec{c} = 3(4) - 3(4) + 0(2) = 12 - 12 + 0 = 0$

$\boxed{\begin{array}{l} \vec{a} \cdot \vec{c} = 0, \text{ the component of A along B is 0} \\ \text{because the two vectors are orthogonal.} \end{array}}$